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Alternatives to
Fiscal Austerity in Spain

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Contents

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Executive Summary

This paper looks at the planned austerity measures in Spain, the rationale for the spending cuts and tax increases, likely outcomes for future debt-to-GDP ratios, and the probable results of alternative policies.

It is widely believed that Spain got into trouble because of the over-expansion of government spending. However, during the economic expansion from 2000-2007, the gross debt-to-GDP ratio declined sharply, from 59.3 to 36.2 percent of GDP. In 2009, interest payments on Spain's debt were just 1.8 percent of GDP, a modest interest burden. Net debt had declined to 26.5 percent of GDP in 2007.

Net debt is a better measure of the country's debt burden than gross debt, because interest that is paid on debt held by the government accrues to the government, and therefore does not represent a burden on government finances. In this paper we will use both figures, because the gross debt figures are most commonly cited in the press.

The cause of Spain's current debt problems, as well as its unemployment and weak recovery, was thus not an over-expansion of government but the collapse of private demand. The country had built up a large housing bubble that began to collapse in 2007, at the same time that the economy was hit with external shocks from the world recession. Between 2000 and 2006, construction increased from 7.5 percent of GDP to a peak of 10.8 percent. Since the collapse, housing starts have fallen by more than 87 percent from their peak.

Spain also suffered from the collapse of an enormous stock market bubble: the stock market peaked at 125 percent of GDP in November 2007 and dropped to 54 percent of GDP a year later. The wealth effect of this huge drop in stock values would be expected to be very large, in the range of a 1.3 – 1.75 percent fall-off in GDP.

Unemployment has risen from 8.5 percent to over 20 percent, and is projected to be at 15.5 percent at the end of 2013.

For an alternative to current pro-cyclical policies, we consider two versions of a continued fiscal stimulus, amounting to 3.9 percent of GDP over the next two years, as compared to the baseline scenario.

In the first alternative, the European Central Bank (ECB) buys debt equal to 4 percent of GDP annually over two years. This would be done with an agreement to refund the interest payments on the debt to the Spanish government.

Although the ECB and European authorities – which currently includes the IMF for these decisions – would be unlikely to carry out this policy, it is important to illustrate because it shows that there is a simple, feasible alternative to present policies that does not lead to an unsustainable debt burden. In this case, the net debt-to-GDP ratio increases to just 60.5 percent of GDP in 2020, as compared to 64.3 percent of GDP in the baseline scenario based on the government's projections.

The feasibility of such an approach must be emphasized. The U.S. Federal Reserve has added more than one trillion dollars to its balance sheet – thus more than doubling it – since the U.S. recession began. There has been no threat to inflation resulting from this money creation. The Bank of Japan has financed trillions of dollars of debt since the 1990s by creating money, with the result that there is a more than 100 percentage point (of GDP) difference between the government's gross and net debt; and yet inflation has been extremely low in Japan over the past 20 years and sometimes negative. Consumer price inflation in Europe is currently at about one percent.

In the second alternative, the continued stimulus is the same size but is financed through regular borrowing, rather than money creation by the ECB as described above. In this scenario the net debt is significantly higher, increasing to 68.3 percent of GDP by 2020. It is worth noting, however, that this is just four percentage points higher than the government's baseline scenario.

The government currently plans budget cuts and tax increases, which it projects will stabilize the gross debt-to-GDP ratio at 69 percent of GDP by 2013 (net debt at 62.4 percent). However, there are many historical examples in which growth turned out to be seriously overestimated when pro-cyclical policies were implemented. For example, Ireland began reducing its fiscal deficit at the end of 2008. At the time, the IMF projected 1 percent growth for 2009; the actual result was negative 10 percent.

Furthermore, if the planned pro-cyclical policies result in slower growth or push the economy back into recession, this could cause the interest rate on new debt for Spain to rise. In this paper we look at three scenarios that incorporate a lower growth projection, with interest rates of 6, 7, and 8 percent on Spain's debt. In these scenarios, Spain's gross debt-to-GDP ratio rises to 85.5, 90.6, and 96.1 percent of GDP, respectively, by 2020. Net debt rises to 76.6, 81.7, and 87.2 percent of GDP, respectively.

Thus, there are plausible scenarios under which the planned pro-cyclical policies can lead to much higher debt levels than would result from the continuation of a moderate fiscal stimulus. Even from the point of view of avoiding unsustainable debt accumulation, the risk of a prolonged stagnation – combined with higher interest rates – may be much greater than the risks associated with counter-cyclical fiscal policy at present. And the alternative, feasible counter-cyclical policies would avoid much of the social and economic costs of lost output and prolonged high unemployment that Spain currently faces.

Introduction

In recent months Spain has become a focus of sovereign debt troubles in Europe. The country's borrowing costs, as well as the price of credit default swaps on its debt, have risen and its sovereign bond rating was downgraded one notch from AAA to AA+ by Fitch ratings. On June 30th, Moody's warned that Spain's sovereign debt was "on review for possible downgrade."[1]

In response to pressure from financial markets, and in order to qualify for assistance from the EU and International Monetary Fund (IMF) should this become necessary, the government has adopted an austerity plan that provides for spending cuts of 15.3 billion euros, or about 1.4 percent of GDP, over the next two years. The government also plans tax increases of 17.9 billion euros, or about 1.6 percent of GDP, for a total fiscal tightening of about 2.9 percent of GDP. It is also preparing to adopt labor market reforms that would make it easier to lay off employees and reduce severance packages.[2] However, even among analysts normally sympathetic to fiscal tightening, it has been recognized that this will further slow an economy that is barely recovering from recession, with unemployment of more than 20 percent, as shown in **Figure 1**. In fact, the decision by Moody's to review Spain's sovereign debt rating was reported as "due to the weak growth prospects of its fragile economy."[3] This and numerous other press reports raise the question of whether the prescribed fiscal austerity could actually lead to higher interest rates on Spain's debt, to the extent that these measures reduce economic growth.

FIGURE 1
Actual and Projected Unemployment, 2005-2013
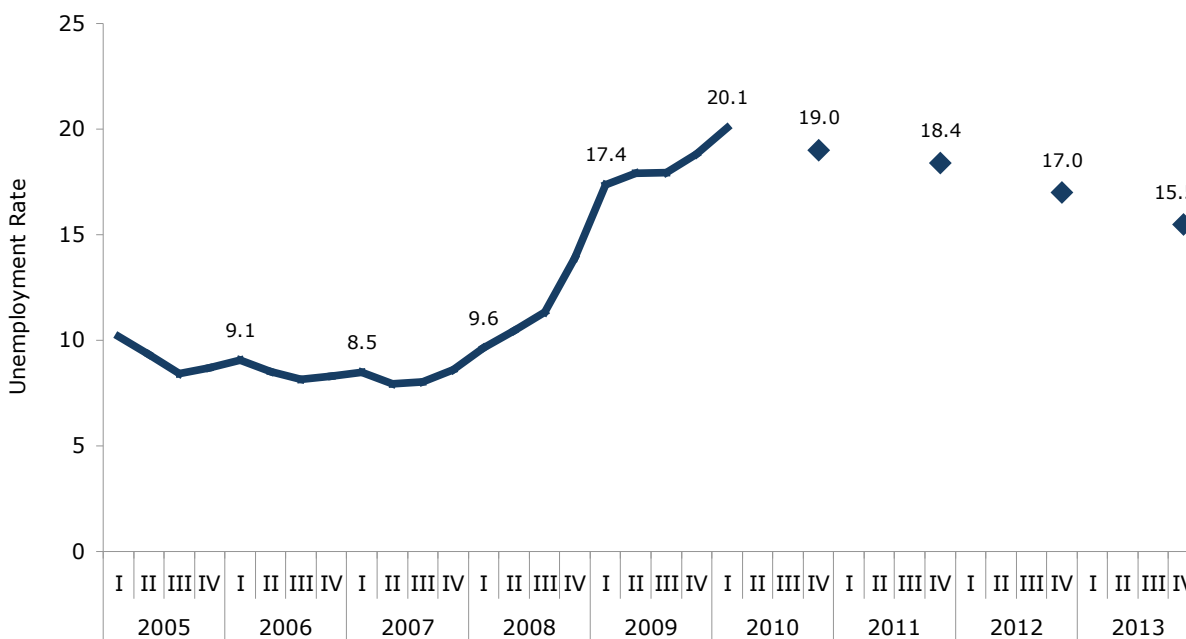
Source: Eurostat and the Ministerio de Economía y Hacienda.
Notes: This figure shows the national measure of unemployment. The EU harmonized unemployment rate is currently somewhat lower, at 19.2 percent in the first quarter of 2010.

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1 Agence France-Presse (2010a).
2 Agence France-Presse (2010b).
3 Agence France-Presse (2010a).

Most of the current discussion assumes that Spain must adopt policies of fiscal tightening and labor market reform in order to exit from the current crisis and to restore economic growth. It is assumed that the government cannot use expansionary fiscal policy, and that the ECB cannot help the country with expansionary monetary policy (in the form of quantitative easing). There is also a general perception that Spain's problems are a result of excessive government spending and resultant growth of deficits and public debt.

Furthermore, to the extent that the Euro is an overvalued currency for Spain – since its productivity levels are lower than Germany or France, and have fallen further behind in recent years – the current fiscal tightening offers the possibility of an "internal devaluation." This is accomplished through lowering wages, as the economy shrinks due to pro-cyclical policies. Economic recovery based on internal devaluation has often proved to be difficult or impossible, for a number of reasons.[4]

This paper looks at some of the details of Spain's debt, the origins of the current situation, and projections under various possible scenarios. It will also compare the current pro-cyclical policies to various alternatives. The paper finds that the most commonly accepted analyses of Spain's problems, as well as solutions, are questionable, and that feasible alternatives could be less risky and lead to higher levels of employment and output.

Economic Context

Table 1 shows the growth of Spain's debt-to-GDP ratio, its central government budget balance, and GDP growth, since 2000. It shows robust economic growth (averaging 3.6 percent annually in real terms) from 2000-2007. During this time, the gross debt-to-GDP ratio declined sharply, from 59.3 to 36.2 percent of GDP. The government's budget balance shifted from small deficits to surpluses for the last three years of the expansion (2005-2007), with surpluses of about two percent of GDP in 2006 and 2007. It is also worth noting that interest payments on Spain's debt were just 1.8 percent of GDP for 2009, a modest interest burden.

TABLE 1
Spain: Selected Economic Indicators (Percent of GDP)

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Gross Debt/GDP	59.3	55.5	52.5	48.7	46.2	43.0	39.6	36.2	39.7	53.2
Net Debt/GDP	…	…	…	…	…	34.7	30.5	26.5	30.3	45.8
Interest Payments	3.2	3.0	2.7	2.4	2.0	1.8	1.6	1.6	1.6	1.8
General Gov. Balance	-1.0	-0.6	-0.5	-0.2	-0.3	1.0	2.0	1.9	-4.1	-11.2
General Gov. Primary Balance	2.2	2.4	2.2	2.1	1.7	2.8	3.7	3.5	-2.5	-9.4
Real GDP Growth (percent change)	5.1	3.6	2.7	3.1	3.3	3.6	4.0	3.6	0.9	-3.6
Source: IMF (2010) and Eurostat										

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4 For a discussion of the difficulties of recovery through internal devaluation see e.g. Weisbrot and Ray (2010). For a comprehensive account of downward nominal wage rigidity, see Dickey et al (2007).

Table 1 also shows Spain's net debt, which declined to 26.5 percent of GDP in 2007. The net debt is a better measure of the country's debt burden than gross debt, because interest that is paid on debt held by the government accrues to the government, and therefore does not represent a burden on government finances. In this paper we will use both figures, because the gross debt figures are most commonly cited in the press.

These data – the sizeable decline in the debt-to-GDP ratio and the central government budget surpluses before 2008 – go against the common idea that Spain's problems are a result of the over-expansion of government. Rather, the country had built up a large housing bubble that began to collapse in 2007, at the same time that the economy was hit with external shocks from the world recession. Between 2000 and 2006, construction increased from 7.5 percent of GDP to a peak of 10.8 percent.[5] Housing starts have fallen by more than 87 percent from their peak.[6]

In many ways this trajectory is very similar to what happened in the United States: the size of the real estate bubble in both countries guaranteed a recession when it inevitably burst.[7] Like the United States in 2000-2002, Spain also suffered from the collapse of what appears to be an enormous stock market bubble: the stock market peaked at 125 percent of GDP in November 2007 and dropped to 54 percent of GDP a year later. The wealth effect of this huge drop in stock values would be expected to be very large, in the range of 1.3 – 1.75 percent of GDP.[8]

Thus Spain's budget problems, as well as its unemployment and weak recovery, are the result of the same cause: a collapse of private demand. In such circumstances, the most efficient policy would be for the public sector to make up for the loss of private demand until private investment and consumption, and possibly net exports, can sustain normal growth. To cut government spending and raise taxes in such circumstances is pro-cyclical, and can be expected to weaken the recovery, or even possibly push the economy back into recession.

It is worth noting that the amount of Spain's government debt that has to be rolled over this year (as of June) is just 65 billion euros, and peaks at 78.8 billion euros in 2011; it falls off sharply thereafter. This is shown in **Figure 2**. In comparison to the $750 billion eurofund that the European authorities, together with the IMF, have set aside for financial support for Eurozone countries, the 65 billion euros for this year is relatively small. This means that if the European authorities wanted to avoid the possibility of increased risk on Spain's debt due to rising interest rates in the immediate future – as in the scenarios outlined below – they could easily do so with existing, already allocated resources.

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5 Eurostat, National Accounts by 6 Branches.
6 Instituto Nacional de Estadística, Estadísticas de la Construcción.
7 See Baker (2009).
8 This assumes a decline in consumption of 3-4 percent for the loss of stock market wealth, and takes into account that stocks in Spain were about 61.5 percent domestically owned during this period.

FIGURE 2
Bills and Bonds Due, 2010-2041 (Billions of Euros)
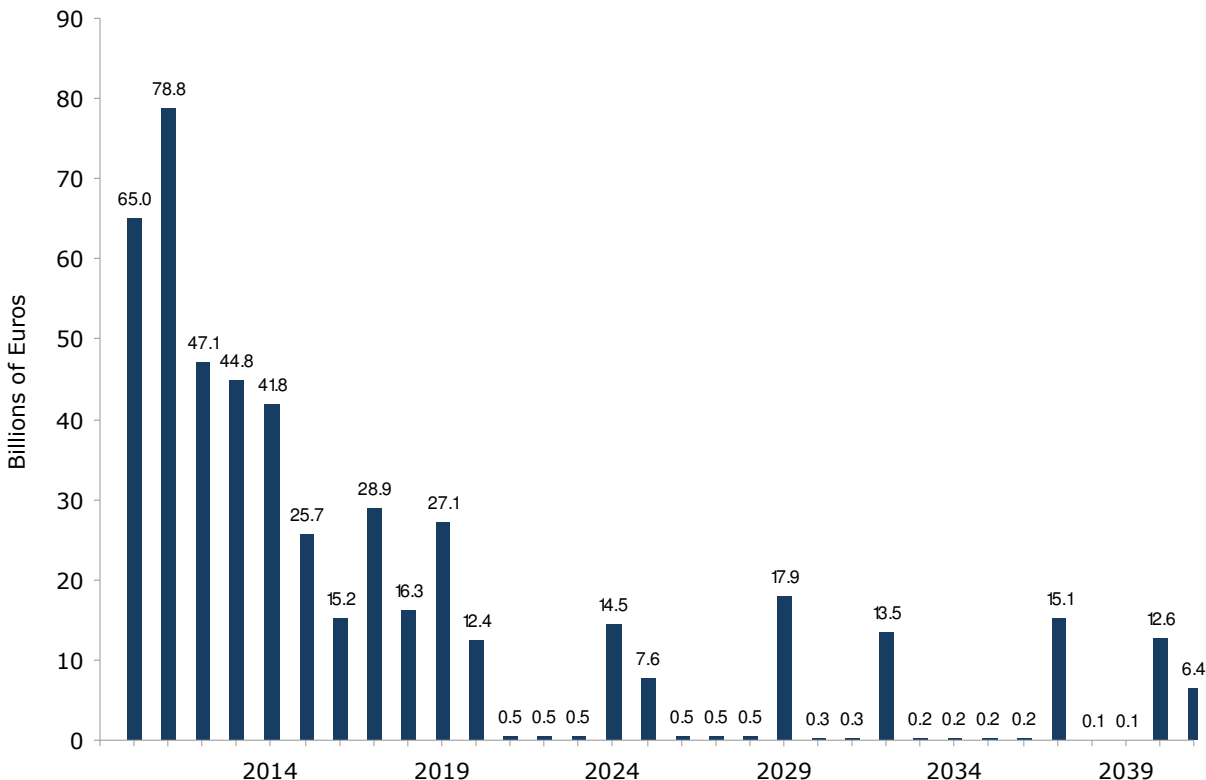
Source: Banco de España
Notes: This graph shows how much of Spain's public debt needs to be repaid or rolled over in each year.

The Japan/US Solution: Central Bank Purchase of New Debt

The most obvious solution is to maintain deficit spending at current levels, or possibly increase it in order to stimulate the economy. The argument against this strategy is that it may lead to unsustainable levels of debt. However, there is a way around this. What matters with regard to debt sustainability is the net interest burden of the debt. For example, Japan has a gross debt of about 227.1 percent of GDP. But its net interest burden is less than two percent of GDP. This is partly because of low interest rates, but also because its net debt is far lower than the gross debt – about 121.6 percent of GDP.[9] In other words, over the years the Japanese Central Bank has purchased trillions of dollars of government debt, creating money in the process, thus preventing this borrowing and expansionary fiscal policy from creating a burden of additional interest payments.

The United States Federal Reserve has also, during the recent recession, added more than one trillion dollars[10] to its balance sheet. Most of this has gone to buying up mortgage-backed securities

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9   See IMF (2010a).
10   Congressional Budget Office (2010), p. 109.

from Fannie Mae and Freddie Mac, and only a fraction was used to purchase new debt from the Treasury. However, it would have added no more risk of inflation or other adverse consequences if all of this money creation – more than 8 percent of US GDP – had been used to purchase Treasury bonds. U.S. inflation as measured by the Consumer Price Index was negative in 2009 and is currently running at 2 percent over the past year. Japan's consumer price index has risen just 5.1 percent in total over the entire last 20 years, despite the monetization of trillions of dollars of debt.

Spain's core inflation was negative in April of this year and was barely positive in May; there is therefore more threat to the economy from deflation, which among other things would increase the country's debt-to-GDP ratio, than there is from a rise in inflation. So a policy of central bank financing of new debt would make sense for Spain, as a way of pursuing counter-cyclical fiscal policy while not piling up a potentially unsustainable debt burden. The problem is that Spain does not have a central bank that could buy its debt through money creation, so this would have to be done by the European Central Bank. In such a scenario, the European Central Bank would buy some portion of new debt issued by the Spanish government, and commit to refunding the interest on that debt to the Spanish government – as has been the case with the U.S. Federal Reserve and the Bank of Japan in the financing described above. Thus the ECB would carry out the same policy that the Spanish central bank could do if Spain had its own currency, as the U.S. and Japanese central banks have done. This would be equivalent to increasing the gross but not the net debt burden, for the debt that was financed in this manner.

The last two rows of **Table 2** show what happens to Spain's net debt if the European Central Bank were to purchase the country's debt in the amount of 4 percent of Spain's GDP, per year, over the next two years. It is assumed that the government does not raise taxes or cut spending during this time. This would allow for a fiscal stimulus of about 3.9 percent of GDP over two years, by abandoning the planned spending cuts and tax increases noted above.

TABLE 2
Spain: Public Debt Projections Under Various Scenarios (percentage of GDP)

|		2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
(a) Gov. Baseline	Gross	39.7	53.2	62.0	66.6	68.7	69.0	69.2	69.2	69.2	69.2	69.2	69.2	69.2
	Net	30.3	45.8	54.7	59.5	61.8	62.4	62.8	63.1	63.3	63.6	63.8	64.1	64.3
(b) Low Growth	Gross	39.7	53.2	62.6	68.5	72.3	74.4	75.7	76.6	77.2	77.4	77.3	76.9	76.4
	Net	30.3	45.8	54.9	60.5	64.0	65.8	67.0	67.8	68.3	68.5	68.4	68.0	67.6
(c) 6% Interest	Gross	39.7	53.2	62.7	69.1	73.5	76.3	78.5	80.4	81.9	83.2	84.2	84.9	85.5
	Net	30.3	45.8	55.0	61.0	65.2	67.7	69.8	71.5	73.0	74.2	75.2	75.9	76.6
(d) 7% Interest	Gross	39.7	53.2	62.8	69.3	74.1	77.3	80.0	82.3	84.5	86.3	87.9	89.3	90.6
	Net	30.3	45.8	55.1	61.3	65.8	68.7	71.3	73.5	75.5	77.4	79.0	80.3	81.7
(e) 8% Interest	Gross	39.7	53.2	62.9	69.6	74.7	78.3	81.5	84.4	87.1	89.6	91.9	94.0	96.1
	Net	30.3	45.8	55.1	61.6	66.4	69.8	72.8	75.6	78.2	80.7	83.0	85.1	87.2
(f) Basic Stimulus	Gross	39.7	53.2	61.8	67.8	72.4	75.5	77.4	78.1	77.6	77.1	76.6	76.1	75.7
	Net	30.3	45.8	54.3	60.2	64.7	67.9	69.8	70.5	70.1	69.6	69.2	68.7	68.3
(g) CB Purchase[1]	Gross	39.7	53.2	61.8	67.8	72.4	75.5	77.4	78.1	77.6	77.1	76.6	76.1	75.7
	Net	30.3	45.8	50.3	52.2	56.6	59.8	61.8	62.5	62.1	61.7	61.3	60.9	60.5

Source: Authors' calculations.
Notes: See Appendix for an explanation of the assumptions underlying each scenario.
[1]In this scenario the European Central Bank purchases Spain's government debt for two years.
See the text for more details.

As can be seen in Table 2, the net debt-to-GDP ratio rises from 45.8 percent of GDP in 2009 to 60.5 percent in 2020. This is a sustainable debt burden. For gross debt, it is an increase from 53.2 to 75.7 percent of GDP. Even by this measure, this is not too high. The average for the European Union today is about 79 percent. (See also **Figure 3**.)

FIGURE 3
Spain: Net Debt Projections Under Various Scenarios (percentage of GDP)
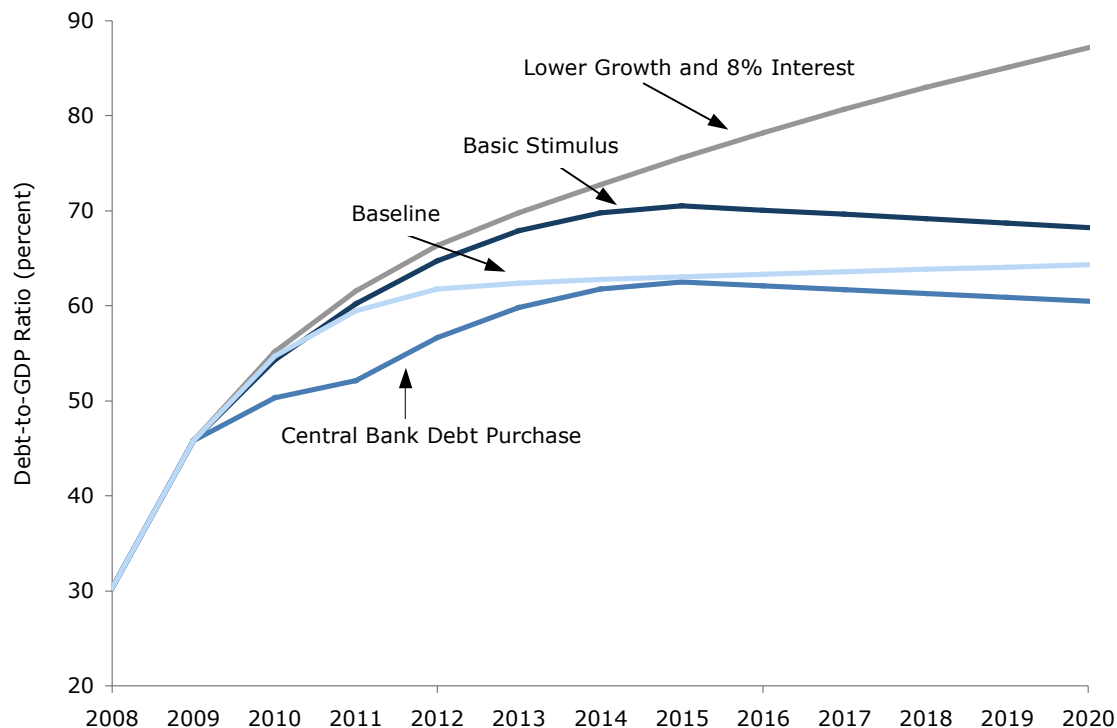
Source: Authors' calculations.

This would be the most sensible alternative to the budget cuts and tax increases that are currently planned. It would enable the economy to continue the stimulus of 2009, and increase growth, without having to worry about significantly increasing the country's net debt burden.

It is worth noting that since unemployment is so high and expected to remain at very high levels for many years to come (see Figure 1 above), the government might want to adopt a larger public employment program to directly create jobs. This could be achieved by keeping the scheduled tax increases and expanding government spending on public works. The appropriate spending levels could be set, with the planned tax increases, to end up with the same debt-to-GDP ratios as above.

Since Spain has adopted the Euro, it could not follow this strategy without help from the European authorities, including the European Central Bank. The ECB is currently working with the European Commission and the IMF to determine what policies will be required of Spain in order to get any assistance, if needed, from all three of these authorities. They all support the pro-cyclical, austerity policies that the Spanish government is committed to.

Nonetheless, it is important to emphasize that there is a very feasible alternative that would immediately reduce unemployment and allow the Spanish economy to accelerate its recovery without posing the risk of an unsustainable debt burden. The risks to the European monetary system would be slight. The amount of Spanish debt that the ECB would need to purchase would be small relative to the Eurozone economy, less than 0.5 percent of Eurozone GDP. Eurozone inflation is currently at about 1 percent, well below the ECB's target of 2 percent; and economists have raised questions as to whether 2 percent is itself too conservative of a target.[11] The question of how the ECB could do this under its current rules, or whether these rules need to be amended, is a secondary one. The main point is that Spain can avoid both the current and planned economic losses due to pro-cyclical policy, and the risks of another recession, with the proper fiscal and monetary policies.

The Risks of Increased Borrowing Costs and Slower Growth

The first line of Table 2 shows the baseline scenario for Spain's debt-to-GDP ratio as projected under the assumptions made by the government of Spain.[12] This scenario includes the planned budget cuts and tax increases necessary to meet the budget deficit target of 3 percent of GDP in 2013. In this scenario, Spain's net debt rises from 45.8 percent of GDP in 2009 to 64.3 percent in 2020. Gross debt rises from 53.2 percent of GDP in 2009 to 69.2 percent of GDP in 2020. This is not necessarily an unsustainably high level of debt, provided that interest rates are not too high. For example, Spain is currently paying an average of about 3.5 percent interest on its debt. At that rate, the interest burden with a net debt of 64.3 percent of GDP would be about 2.3 percent of GDP, which is modest.

However, in a number of countries where pro-cyclical policies have been adopted, the economy has grown much more slowly – or shrunk at a faster rate – than anticipated. For example, in Latvia, the IMF in December of 2008 projected that the economy would decline by 5 percent in 2009;[13] the actual result was negative 18 percent. In a less extreme case, Ireland began reducing its fiscal deficit at the end of 2008. At the time, the IMF projected 1 percent growth for 2009; the result was negative 10 percent. There are a number of other examples of overly optimistic projections made when pro-cyclical policies were adopted.[14] There are also risks of early fiscal tightening as the economy recovers from a recession and shocks of the type that Spain has had, as has been noted with regard to the experience of Japan in the 1990s.[15]

It is not surprising that economic growth would be worse than anticipated under pro-cyclical macroeconomic policies. When these are adopted, governments are basically depending on positive

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11 See Blanchard, Dell'Ariccia, and Mauro (2010).
12 See Appendix for more details.
13 See IMF (2008a).
14 For example, the IMF's projections for Argentine growth during its recession of 1998-2002 were grossly
      overestimated. See Rosnick and Weisbrot (2007).
15 For a comparison of Spain's recession and current situation with the Japanese experience of the 1990s, see Braun
   and Díaz-Gímenez (2010).

external shocks, such as an improvement in net exports, to pull the economy out of a slump. If this does not happen, a downward spiral is possible.

In row (b) of Table 2, we consider a scenario in which growth is somewhat slower than projected for the baseline. The baseline projections assume real GDP growth of -0.3, 1.3, 2.5 percent for 2010-2012, and 2.7 percent for 2013-2020. Our "lower growth" scenario assumes growth of -1.5, -1, -0.6, -0.3 percent for the years 2010-2013, with a linear convergence thereafter to 2.7 percent for 2020.[16]

As seen in the table, the gross debt-to-GDP ratio rises to from 53.2 percent of GDP in 2009 to 76.4 percent of GDP in 2020. Net debt rises from 45.8 percent of GDP to 67.6 percent of GDP.

This is still not a terribly high level of debt, especially if we are using the net debt figure. However, there is a possibility that, as the economic recovery lags, bondholders would require a higher risk premium for Spanish government bonds. **Figure 4** shows what happened in May when financial markets became worried about the possibility of default or restructuring in Greece and the other weaker Eurozone economies. As can be seen, the yield on 10-year bonds shot up to 12.4 percent for Greece and 6.29 percent for Portugal.

FIGURE 4
Yields on Benchmark 10-Year Government Bonds
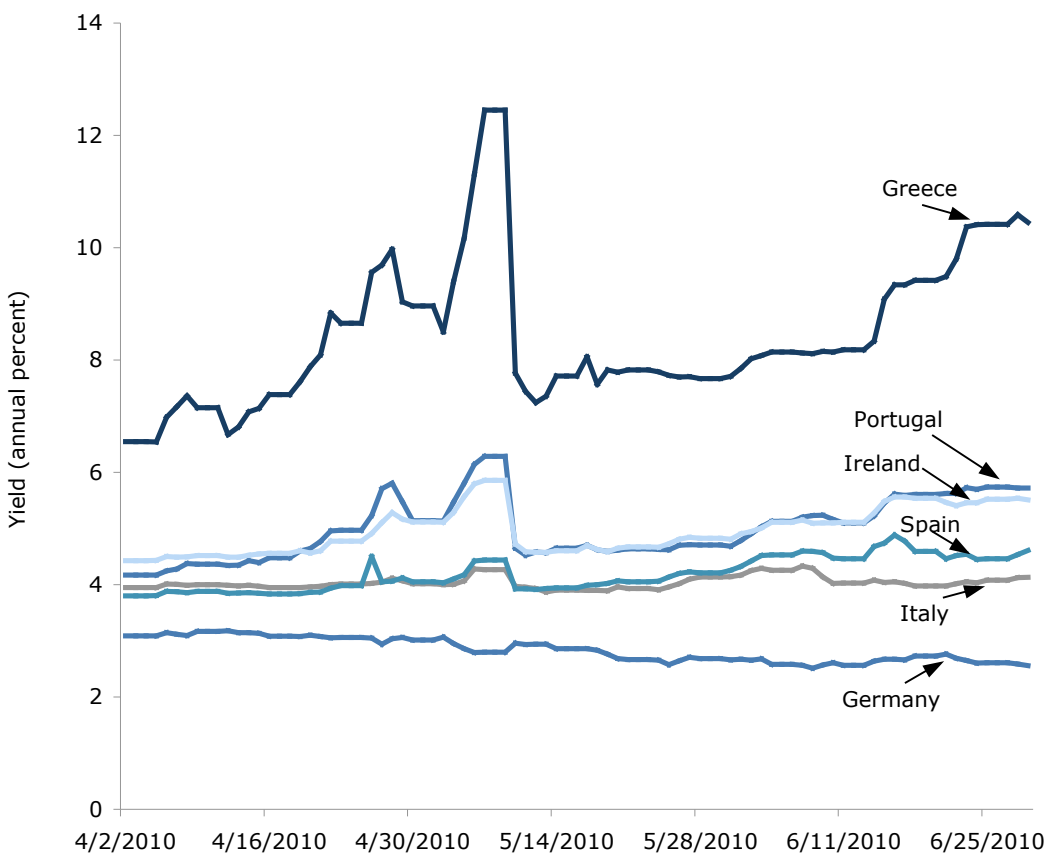
Source: Bloomberg (2010)

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16 See Appendix for more detail.

We therefore look at Spain's projected debt under assumptions of higher interest rates: six, seven, and eight percent. As shown in rows (c) through (e) of Table 2, these higher interest rates, in combination with slower growth, have the potential to raise Spain's net debt in 2020 to 76.6 percent, 81.7 percent, and 87.2 percent of GDP respectively. For gross debt, the figures are 85.5, 90.6 and 96.1 percent, respectively.

There are many other possible outcomes. But the most important point that these projections illustrate is that one of the biggest risks to Spain's solvency going forward is a combination of lagging growth – induced by pro-cyclical fiscal policy – and rising borrowing costs. The slow or negative growth and rising borrowing costs can feed off of each other and induce a vicious spiral. Therefore, although pro-cyclical policies are intended to reduce the country's debt burden and the risk of future insolvency, they have the potential to end up doing the opposite.

Stimulus Scenario

Recognizing that the European authorities are very unlikely to use quantitative easing to support a fiscal stimulus in Spain – as in the first scenario presented in this paper – it is worth looking at the possibility of the government pursuing a fiscal stimulus of its own, borrowing as necessary on international financial markets.

This is shown in row (f) of Table 2. In this scenario, the fiscal stimulus remains in place until 2011 and is phased out gradually thereafter. Total government spending as a percent of GDP is one percent of GDP higher than in the baseline scenario in 2010, and 1.3 percent of GDP higher in 2011. Tax revenue is also 1.7 percent of GDP lower over the two years, as tax increases planned in the baseline scenario are postponed. In this scenario, after 2011 the primary deficit is gradually reduced to 0.1 percent in 2016 and stays constant thereafter.[17] Under this scenario Spain's net debt rises from 45.8 percent of GDP in 2009 to 68.3 percent in 2020. As can be seen from the table, this is only four percentage points higher than the baseline scenario in which the budget deficit is reduced to three percent of GDP in 2013. It is also significantly lower than the scenarios involving slower growth combined with higher interest rates. Since this stimulus is financed by borrowing, the same relationship holds for the gross debt figures: in this scenario the gross debt rises from 53.2 percent of GDP in 2009 to 75.7 percent in 2020. This compares to 69.2 percent of GDP in the baseline scenario, and 85.5, 90.6, and 96.1 percent of GDP in 2020 for the six, seven, and eight percent interest rate scenarios.

Thus it is plausible, under reasonable assumptions about multipliers and government revenue elasticities,[18] that the current austerity program would not result in a significantly lower debt-to-GDP ratio in 2020 than one which continued a stimulus over the next two years. And under scenarios in which the fiscal tightening results in some combination of lower growth and higher interest rates, the resulting debt/GDP ratio could be considerably higher than it is under a stimulus program.

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17 See Appendix for more detail.
18 See Appendix.

Conclusion

It is generally accepted that the current fiscal austerity program in Spain will reduce growth and employment in the short run. However, it is argued that the planned fiscal tightening is necessary in order to prevent Spain's debt from accelerating to unsustainable levels.

This paper shows that there are plausible scenarios under which the planned pro-cyclical policies can lead to much higher debt levels than would result from the continuation of a moderate fiscal stimulus. Even from the point of view of avoiding unsustainable debt accumulation, the risk of a prolonged stagnation, combined with higher interest rates, may be much greater than the risks associated with counter-cyclical fiscal policy at present. And the counter-cyclical policies would avoid much of the social and economic costs of lost output and prolonged high unemployment that Spain currently faces.

Furthermore, we argue that the very low inflation levels in Spain and the Eurozone would make it possible for the European Central Bank to finance counter-cyclical policy in Spain through the purchase of new debt, as has been done recently in the United States and for many years in Japan. This would allow for a rapid recovery without any additional net debt burden.

Appendix: Methodological Notes

The debt projections in this paper distinguish between "old debt," which is debt incurred prior to 2010, and "new debt," which is equal to the debt that is rolled over each year and additional debt incurred due to the primary deficit. This allows a more realistic analysis of the impacts of various interest rate scenarios since potential increases only affect newly contracted debt. Specifically, total debt to GDP, d_t^T, is defined by the following three equations:

(1) $$d_t^O = d_{t-1}^O \left[(1 + i_t^O)/(1 + g_t) \right] - m_t (1 + i_t^O)$$

(2) $$d_t^N = d_{t-1}^N \left[(1 + i_t^N)/(1 + g_t) \right] + m_t (1 + i_t^N) - p_t$$

(3) $$d_t^T = d_t^O + d_t^N$$

where d_t^O and d_t^N stand for old and new debt, as a percentage of GDP, at year t, i_t^O and i_t^N are the interest rates on old debt and new debt, respectively, m_t is the amount of old debt as a percentage of GDP that is maturing in each period t, g_t is the growth rate of GDP and p_t is the primary balance as a percent of GDP.

The stock of "old debt," d_t^O, decreases each year by the amount coming due, m_t. At the same time, d_t^O is decreased by the nominal growth rate of GDP and increases with the interest rate on old debt. "New debt" increases each year by the amount that needs to be rolled over (m_t), the government's primary deficit, and interest payments. Finally, total debt in each year is equal to the sum of old debt and new debt.

Debt Scenario Assumptions

What follows are brief descriptions of the assumptions underlying each debt scenario.

Baseline Scenario

In the baseline scenario (a) the government succeeds in meeting the budget targets outlined in its May austerity plan, shown in **Table A1**. The baseline also uses the government's GDP growth forecasts for 2010-2013. Real GDP growth thereafter remains at 2.7 percent. This is the growth that the government projects for 2013; it is somewhat higher than the average over the last 20 years (2.47 percent).

TABLE A1
Baseline Scenario (percentage change and percent of GDP)

	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Nominal Growth	-3.4	0.9	2.3	3.6	4.1	4.3	4.5	4.5	4.5	4.5	4.5	4.5
Real Growth	-3.6	-0.3	1.3	2.5	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7
Budget Balance	-11.2	-9.3	-6.0	-4.4	-3.0	-3.0	-3.0	-3.0	-3.0	-3.0	-3.0	-3.0
Primary Balance	-9.4	-7.1	-3.4	-1.4	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Gross Debt	53.2	62.0	66.6	68.7	69.0	69.2	69.2	69.2	69.2	69.2	69.2	69.2
Net Debt	45.8	54.7	59.5	61.8	62.4	62.8	63.1	63.3	63.6	63.8	64.1	64.3

Source: Authors' calculations.

Lower Growth Scenarios

The next four scenarios build on the baseline in assuming that the government successfully implements its austerity plan but as a consequence experiences lower growth. Instead of using the government's GDP growth forecasts, this scenario assumes real GDP growth is -1.5 percent in 2010, -1 in 2011, -0.6 in 2012 and -0.3 in 2013. After 2013 growth converges linearly to 2.7 percent by 2020.

(a) Lower Growth

The lower growth scenario (a) uses the lower growth figures discussed above. The interest rate is set at four percent for the entire debt stock.

TABLE A2
Lower Growth Scenario (percentage change and percent of GDP)

	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Nominal Growth	-3.4	-0.3	0.0	0.5	1.0	2.0	2.7	3.1	3.5	4.0	4.4	4.5
Real Growth	-3.6	-1.5	-1.0	-0.6	-0.3	0.4	0.9	1.3	1.7	2.2	2.6	2.7
Primary Balance	-9.4	-7.1	-3.4	-1.4	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Gross Debt	53.2	62.6	68.5	72.3	74.4	75.7	76.6	77.2	77.4	77.3	76.9	76.4
Net Debt	45.8	54.9	60.5	64.0	65.8	67.0	67.8	68.3	68.5	68.4	68.0	67.6

Source: Authors' calculations.

(b) Lower Growth: 6% Interest
The six percent interest rate scenario (b) uses the same assumptions as in the previous scenario only it assumes that creditors demand a six percent interest rate in order to hold Spain's public debt. In other words, the annual interest rate on new debt is six percent. The interest rate on old debt remains at four percent.

TABLE A3
Six Percent Interest Rate Scenario (percentage change and percent of GDP)

	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Nominal Growth	-3.4	-0.3	0.0	0.5	1.0	2.0	2.7	3.1	3.5	4.0	4.4	4.5
Real Growth	-3.6	-1.5	-1.0	-0.6	-0.3	0.4	0.9	1.3	1.7	2.2	2.6	2.7
Primary Balance	-9.4	-7.1	-3.4	-1.4	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Gross Debt	53.2	62.7	69.1	73.5	76.3	78.5	80.4	81.9	83.2	84.2	84.9	85.5
Net Debt	45.8	55.0	61.0	65.2	67.7	69.8	71.5	73.0	74.2	75.2	75.9	76.6

Source: Authors' calculations.

(c) Lower Growth: 7% Interest

This scenario is the same as (a) and (b) only that it assumes an annual interest rate of seven percent on new debt.

TABLE A4
Seven Percent Interest Rate Scenario (percentage change and percent of GDP)

	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Nominal Growth	-3.4	-0.3	0.0	0.5	1.0	2.0	2.7	3.1	3.5	4.0	4.4	4.5
Real Growth	-3.6	-1.5	-1.0	-0.6	-0.3	0.4	0.9	1.3	1.7	2.2	2.6	2.7
Primary Balance	-9.4	-7.1	-3.4	-1.4	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Gross Debt	53.2	62.8	69.3	74.1	77.3	80.0	82.3	84.5	86.3	87.9	89.3	90.6
Net Debt	45.8	55.1	61.3	65.8	68.7	71.3	73.5	75.5	77.4	79.0	80.3	81.7

Source: Authors' calculations.

(d) Lower Growth: 8% Interest

This scenario is the same as (a) and (b) only that it assumes an annual interest rate of 8 percent on new debt.

TABLE A5
Eight Percent Interest Rate Scenario (percentage change and percent of GDP)

	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Nominal Growth	-3.4	-0.3	0.0	0.5	1.0	2.0	2.7	3.1	3.5	4.0	4.4	4.5
Real Growth	-3.6	-1.5	-1.0	-0.6	-0.3	0.4	0.9	1.3	1.7	2.2	2.6	2.7
Primary Balance	-9.4	-7.1	-3.4	-1.4	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Gross Debt	53.2	62.9	69.6	74.7	78.3	81.5	84.4	87.1	89.6	91.9	94.0	96.1
Net Debt	45.8	55.1	61.6	66.4	69.8	72.8	75.6	78.2	80.7	83.0	85.1	87.2

Source: Authors' calculations.

Stimulus Scenarios

The following two scenarios consider what would happen if the government of Spain postponed fiscal tightening and instead kept the 2009 fiscal stimulus in place during 2010 and 2011. Specifically, total government expenditure remains constant at its 2009 level, 485 billion euros or 46.1 percent of 2009 GDP. We also assume the government does not implement its currently planned tax increases, which amount to 17.9 billion euros over 2010 and 2011.

(a) Basic Stimulus Scenario

We consider the effects of these changes in government spending and taxation on GDP using a

spending multiplier of 1.2 and a multiplier of 0.4 for tax revenues, over a two-year horizon.[19] As can be seen in **Table A6**, below, real GDP growth equals 1.1 percent in 2010 and 1.7 percent in 2011, and GDP surpasses its 2008 level by 2011. Real GDP growth then converges to its long-run rate of 2.7 percent by 2014 and remains constant thereafter.

Government revenue during 2010 and 2011 grows at the same rate as forecast by the government of Spain, but taking into account the effect of higher GDP growth. To do this we scale up government revenues assuming an income elasticity of revenue of 1.[20] The result is a government primary deficit of 7.7 and 5.2 percent of GDP in 2010 and 2011, respectively. We assume the government gradually reduces its primary deficit in the following years. Specifically, the primary balance converges linearly to a 0.1 percent of GDP surplus by 2016.

Interest rates in this scenario are the same as in the baseline—four percent for both old and new debt.

TABLE A6
Basic Stimulus Scenario (percentage change and percent of GDP)

	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Nominal Growth	-3.4	2.3	2.7	3.6	4.1	4.3	4.5	4.5	4.5	4.5	4.5	4.5
Real Growth	-3.6	1.1	1.7	2.5	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7
Primary Balance	-9.4	-7.7	-5.2	-4.3	-3.2	-2.1	-1.1	0.1	0.1	0.1	0.1	0.1
Gross Debt	53.2	61.8	67.8	72.4	75.5	77.4	78.1	77.6	77.1	76.6	76.1	75.7
Net Debt	45.8	54.3	60.2	64.7	67.9	69.8	70.5	70.1	69.6	69.2	68.7	68.3
Source: Authors' calculations.												

(b) Central Bank Debt Purchase Scenario

This scenario uses all the same assumptions as the basic stimulus scenario discussed above. What is different is that in this case we assume European authorities purchase debt from the Spanish government in the amount of four percent of GDP in 2010 and 2011. In other words, the stock of net new debt in 2010 and 2011 is lower by four percent of GDP in both years.

TABLE A7
Central Bank Debt Purchase Scenario (percentage change and percent of GDP)

	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Nominal Growth	-3.4	2.3	2.7	3.6	4.1	4.3	4.5	4.5	4.5	4.5	4.5	4.5
Real Growth	-3.6	1.1	1.7	2.5	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7
Primary Balance	-9.4	-7.7	-5.2	-4.3	-3.2	-2.1	-1.1	0.1	0.1	0.1	0.1	0.1
Gross Debt	53.2	61.8	67.8	72.4	75.5	77.4	78.1	77.6	77.1	76.6	76.1	75.7
Net Debt	45.8	50.3	52.2	56.6	59.8	61.8	62.5	62.1	61.7	61.3	60.9	60.5
Source: Authors' calculations.												

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19 Estimates by the OECD (2001) place the Euro Area multiplier at 1.2 over a one-year horizon. IMF (2009) reviews this literature extensively and reports similar values for spending multipliers, and taxation multipliers in the range of 0.4 to 0.5 over two-year horizons.

20 This is a fairly conservative revenue elasticity for Spain. IMF (1999) estimates that Spain's overall elasticity of revenue with respect to GDP growth is 1.25. Most Eurozone countries have revenue elasticities of about 1.

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